

## THE STRUCTURE OF SPACE

PROBLEM STATEMENT: Two types of basic structural systems will be investigated in this project. The systems will be limited to structure and the implications which structure imposes on space, circulation, and sequence. No functional considerations will be dealt with in this project.

### STRUCTURAL SYSTEM NO. 1: BEARING WALL

Make use of a bearing wall structural system to create a series of **at least four** interrelated spaces, and construct a model of these spaces. Use the following constraints:

1. Do not consciously consider function, but do consider an interesting sequence of spaces with a variety of shapes and sizes, a variety of heights and levels, and a clear circulation pattern.
2. No span shall be longer than 18'-0".
3. The system shall be multi-leveled.
4. The site may have a varied topography (i.e., different ground elevations).
5. "Bearing" walls are 1'-0" thick brick.
6. Framing members (horizontal wood members supporting an imaginary floor or roof) are 2x12's spaced at 16" o.c. for floors and roofs.
7. Show all structural elements such as joists, rafters, walls, and headers. Show how openings in floors and roofs are framed. Show openings in walls. Structure is to be left exposed.
8. Show openings that will relate the inside of the building to the outside for views, light, and air.
9. Show a variety of spaces, ways to let in natural light, and roof pitches and shapes.
10. Show all stairs and ramps.
11. Show window mullions.
12. Show non-bearing infill walls as required.
13. You are limited to a 60 foot x 100-foot area for the total scheme.

## STRUCTURAL SYSTEM NO. 2: POST AND BEAM

Make use of a post and beam structural system to create a series of interrelated spaces, and construct a model of these spaces. Use the same constraints as the bearing wall problem with the following additional constraints:

1. All framing (columns and beams) members are wood.
2. Columns are to be either round or square in section (if you want, columns may be painted Chinese red).
3. Make beam and girder sizes appropriate to span.

## REQUIRED PRESENTATION

Each student will build one of the two schemes: Steve, Ty, Ron, Alaa and Fabian will study the bearing wall scheme, Jesus, Tafim, Dario and Chris will study the post-and-beam scheme.

Produce one model for your assigned scheme, at  $1/4" = 1'-0"$  scale, using  $3/16"$  thick white foam core for bearing walls, balsa wood or bass wood for joists, beams, girders and columns, and Crescent mat board in some chromatic color (red, blue, green, etc.) for non-bearing partitions. Both models are to be mounted on a  $20" \times 30" \times 3/16"$  thick foam core base, with computer-generated lettered title  $1/2"$  high lettering "BEARING WALL" or "POST-AND-BEAM" listing also  $1/4"$  high lettering for basic information (your name, course name, date, and critic's name). Use Elmer's Glue-all to glue pieces of model together.

Emphasis on design is spatial sequence, proportion, and variety in unity.

Project is due on Monday, May 14, our last class.